UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2002/00263

March 21, 2003

Mr. Robert E. Willis
Chief, Environmental Resources Branch
Department of the Army
Portland District, Corps of Engineers
P.O. Box 2946
Portland, OR 97208-2946

Re: Endangered Species Act Formal Section 7 Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Eugene Delta Ponds Restoration Project, Willamette River, Lane County, Oregon

Dear Mr. Willis:

Enclosed is a biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act that addresses the proposed Eugene Delta Ponds Restoration Project. NOAA Fisheries concludes in this Opinion that the proposed action is not likely to jeopardize Upper Willamette River (UWR) chinook salmon (*Onchorynchus tshawytscha*). This Opinion includes reasonable and prudent measures with terms and conditions that are necessary and appropriate to minimize the potential for incidental take associated with this project.

This document also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600. The Willamette River and tributaries have been designated as EFH for chinook salmon (*O. tshawytscha*).

If you have any questions regarding this consultation please contact Ron Lindland of my staff in the Oregon Habitat Branch, at 503.231.2315.

Sincerely,

Russell M Strach for

D. Robert Lohn
Regional Administrator

cc: Michelle Cahill, City of Eugene
Jeff Ziller, ODFW

Endangered Species Act - Section 7 Consultation
Biological Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Eugene Delta Ponds Restoration Project
Willamette River (Dedrick Slough)
Willamette River Basin, Lane County, Oregon

Agency:	U.S. Army Corps of Engineers
Consultation Conducted By:	NOAA's National Marine Fisheries Service, Northwest Region
Date Issued:	March 21, 2003
Issued by:	Russell M Strach for _____ D. Robert Lohn Regional Administrator
Refer to:	**2003/00263**

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1. INTRODUCTION

1.1 Consultation History

On March 28, 2002, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a letter from the Corps of Engineers (COE) requesting informal Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (MSA) consultation on the effects of the proposed Eugene Delta Ponds Restoration Project on Upper Willamette River (UWR) chinook salmon (*Oncorhyncus tshawytscha)*. The COE determined in the accompanying March 2002, biological assessment (BA) that the proposed action is "not likely to adversely affect" (NLAA) UWR chinook salmon. After onsite meetings with City of Eugene representatives to collect further information on the proposed project, NOAA Fisheries responded with a letter dated May 17, 2002, indicating that NOAA Fisheries did not concur with the finding of NLAA and would begin formal consultation. NOAA Fisheries' nonconcurrence was based on the potential for stranding and mortality of juvenile UWR chinook salmon in the ponds during project implementation and operation, and the lack of sufficient information regarding design details of the pond inlets, outlets, intra-pond culverts, and operation of water control structures. The COE also provided additional information on several occasions during June through August 2002, on hydrologic and hydraulic modeling of the ponds, water quality and bottom sediment data from the ponds and Dedrick Slough, and detailed drawings and aerial photographs of the project area. On August 21, 2002, NOAA Fisheries received a letter from the COE requesting formal ESA consultation and MSA consultation on the proposed project. Following consultation initiation, the COE submitted information on proposed additional recreational features. These included parking lots and a foot bridge described in plans received September 26, 2002. Additionally, meetings to discuss possible plans for a City of Eugene bike path culvert were held in October and December 2002, but in January 2003, they removed this project from the recreational features of the project (personal communication January 2, 2003, from K. Finney, City of Eugene, to A. Mullan, NOAA Fisheries).

NOAA Fisheries listed UWR chinook salmon as threatened under the ESA on March 24, 1999 (64 FR 14308). NOAA Fisheries issued protective regulations for UWR chinook salmon under section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

The objective of this Opinion is to determine whether implementing the Eugene Delta Ponds Restoration Project is likely to jeopardize the continued existence of UWR chinook salmon.

The objective of the EFH consultation is to determine whether the proposed action may adversely affect designated EFH for UWR chinook salmon, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

1.2 Proposed Action

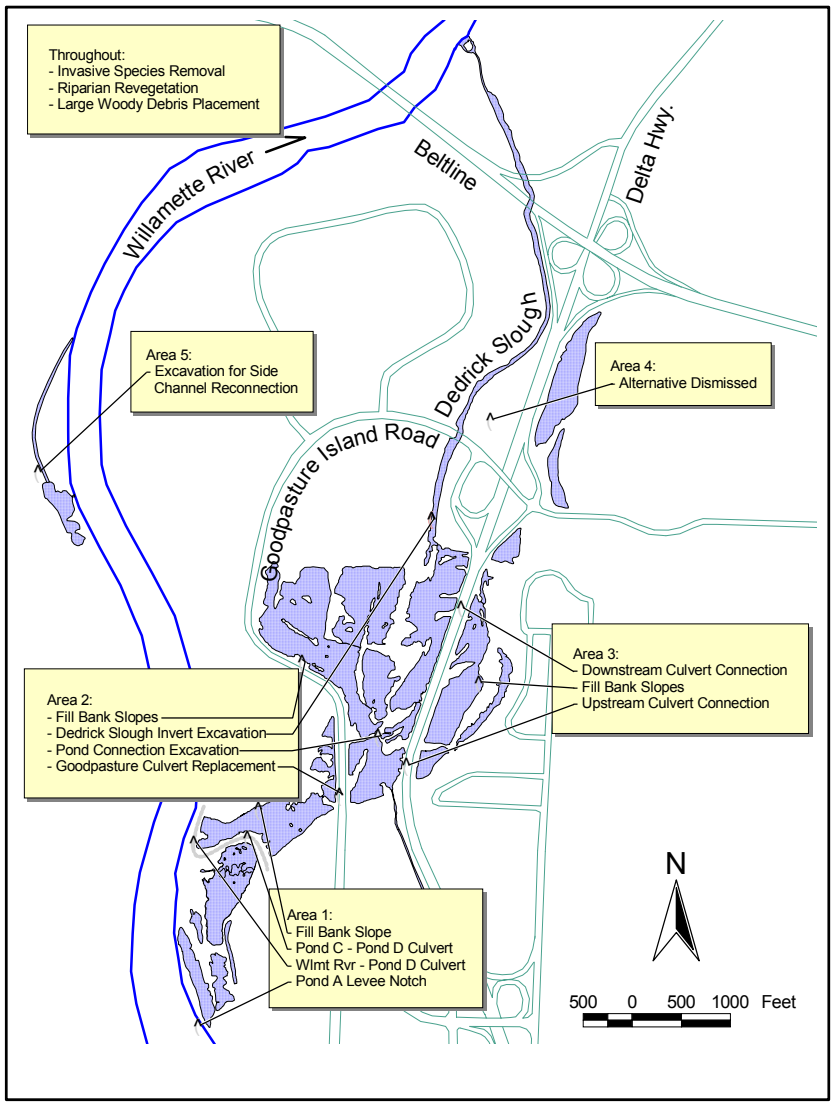
The City of Eugene proposes to implement the Eugene Delta Ponds Restoration Project. To facilitate description of the proposed action, the project site has been divided into five areas, shown in Figure 1. Area 1 (58 acres) includes five ponds (Ponds A-E) and is located at the upstream and southernmost end of the project area, west of Goodpasture Island Road. Area 2 (62 acres) includes seven ponds (F-L) and Dedrick Slough, and is located between Goodpasture Island Road and the Delta Highway. Area 3 (19 acres) includes six ponds (M-R) and is located east of the Delta Highway. According to the BA, the land parcel referred to as Area 4 (13 acres) could not be acquired because it is currently the right-of-way for the Delta Highway. Therefore, no action is proposed as part of this project, and the area will not be further addressed in this Opinion. Area 5 (2 acres) is located on the west bank of the Willamette River, slightly northwest of the ponds. It is a remnant side channel that is connected to the mainstem Willamette River at high flows.

The proposed action includes the following activities: (1) Construction of two inlets from the Willamette River to ponds A and D; (2) excavation of high spots (shallow areas) in Dedrick Slough to prevent fish stranding; (3) excavation of high spots (shallow areas) in ponds F-L to establish a flow-through channel to Dedrick Slough; (4) installation of culverts and water control features for water connectivity between Areas 1, 2 and 3; (5) filling/grading of pond margins to establish flatter slopes to restore emergent wetland and riparian buffers; and (6) reconnection of a former side channel (Area 5) on the west side of the Willamette River just north of the Delta Ponds area.

Connecting the ponds in Areas 1, 2, and 3 would require replacement of the culvert beneath Goodpasture Island Road to connect ponds D and F, placement of culverts beneath the Delta Highway to connect ponds F and M and P and L, and excavation of a flow-through connection between ponds M, O, P, and R. In addition to providing connectivity between the ponds and the Willamette River, proposed activities include: (1) Restoring a riparian buffer along the ponds and Dedrick Slough to the maximum widths permitted by roads and development (varying from 25 to 100 feet); (2) removing invasive plant species and replanting with native riparian and wetland plant species throughout much of the project area; (3) placing of large woody debris (LWD) throughout the ponds; and (4) deepening of high spots (shallow areas) in Dedrick Slough that currently cause backwater conditions and contribute to poor water quality conditions and fish stranding. Most of the LWD to be placed in the ponds will come from existing stockpiles at off-site locations.

The culvert under Goodpasture Island Road will be a concrete box-type culvert, 12 feet wide, subgraded, with gravel placed in the bottom. The two culverts under the Delta Highway will also be concrete box-type, six feet wide, subgraded, and with gravel bottoms.

Figure 1. Location of Eugene Delta Ponds action areas. Source: Tetra Tech 2002.



In Area 1, the inlet culvert to Pond D would be gated such that water from the Willamette River could be shut off during high river flows (exceeding approximately 11,000 cubic feet per second [cfs]). The inlet from the river to Pond A would be an open channel, formed by notching the levee. Downstream of the Pond A opening, another gated culvert will be placed in the levee between Ponds C and D, which will be closed whenever the gate from the river to Pond D is closed, leaving only the Pond A inlet open to the river. Flows exceeding 11,000 cfs are expected to occur periodically and for one to two weeks during fall through spring. The gate design has not been finalized, but the gates will be manually operated by the City of Eugene. Up to 200 cfs could be introduced through these inlets into the ponds from the river.

Recreational features include parking areas located in Area 2, providing 25 spaces and possibly two bus stalls; a gravel trail along the Delta Highway and Goodpasture Island Road edges of Area 2; and a footbridge over the swale between Ponds F and G in Area 2. The parking lots would be approximately 40 feet wide, with a 20-foot wide access from Goodpasture Island Road, and a ten-foot wide shoulder adjacent to the ponds. Final plans were not provided for the parking lots or the stormwater runoff management from the impervious surfaces. Additionally, riparian benches will be planted along the region of Areas 1 and 2 that are adjacent to the 12-foot culvert under Goodpasture Island Road.

The overall goals of the project are to reconnect the pond system to the Willamette River for fish passage and juvenile UWR chinook salmon rearing, and to implement a restoration project that increases habitat diversity for both aquatic and terrestrial species, including amphibians, turtles, fish (primarily salmon), and neotropical migratory birds.

This project is proposed for construction in 2003. All in-water construction will occur during the preferred Oregon Department of Fish and Wildlife (ODFW) in-water work window for the Willamette River in this area (June 1 to October 31). If any UWR chinook salmon or other salmonids are observed in the ponds as construction is proceeding they will be removed with nets and buckets and released in the Willamette River. All areas will be accessed via existing roads and driveways, therefore no new access roads will be required. Construction of temporary berms in Dedrick Slough, installation of silt fencing, and other appropriate erosion control methods will be implemented to minimize sediment transport to the Willamette River during construction activities. Mulch material or straw will be placed on all graded or tilled areas, and the areas will be hydro-seeded within 48 hours as they are completed. The BA provides the following likely sequence of construction activities:

1. Mobilize equipment
2. Place silt fencing for clearing of staging area to ponds
3. Clear staging area
4. Place silt fencing or other measures to prevent sedimentation from work areas; may primarily be a berm between Pond L and Dedrick Slough to prevent turbidity from leaving the ponds
5. Remove non-native species and do hand tilling in riparian zone throughout all underplanting areas as needed

6. Excavate channels through ponds F-L and M-R
7. Excavate levee and place culvert between Ponds C and D
8. Replace culverts under Goodpasture Road and Delta Highway (method to be determined during design phase to minimize disruption of traffic)
9. *Option*: If water level in Pond L has increased by more than 6 inches due to connections to Areas 1 and 3, will need to drain water into Dedrick Slough after turbidity has settled out
10. Grade slopes and place fill for riparian buffers
11. Place LWD in ponds and on banks
12. Place berm or similar at outlet of Dedrick Slough to prevent turbidity from entering the Willamette River
13. Excavate high spots in Dedrick Slough
14. Excavate open notch to connect Pond A
15. Excavate and place culvert for Pond D connection to River
16. Construct recreation features (trail and parking)
17. Place mulch or straw and hydroseed within 48 hours on all graded or tilled surfaces as they are completed
18. Remove berms at Dedrick Slough
19. Place silt fencing around Area 5 side channel as appropriate
20. Clear debris as necessary
21. Excavate side channel
22. Place LWD in side channel
23. Slope and grade as necessary for side channel
24. Place substrate in channel bottom
25. Place mulch or straw and hydroseed on Area 5 graded surfaces when complete
26. Plant riparian and wetland plantings at all areas in the fall, following construction season
27. Mulch plants as needed at all areas

1.2.1 Specific Restoration Activities For Each Area

Area 1

Proposed restoration elements in Area 1 include: (1) Construction of two inlets from the Willamette River into ponds A and D (an open channel inlet at Pond A and a culvert connection with a control gate at Pond D); (2) excavation of connections between the ponds as necessary to create a flow-through channel; (3) placement of a controlled (gated) culvert beneath the levee between ponds C and D; (4) sloping and filling of banks around the majority of pond D to create a wider buffer; (5) removal of non-native plant species; (6) replanting bank slopes with riparian and wetland plant species, (7) underplanting in the existing riparian zone with native shrubs and conifers; and (8) placement of LWD in the ponds and connecting channel.

Area 2

Proposed restoration measures in this area include: (1) Replacement of the culvert beneath Goodpasture Island Road; (2) excavation of high spots (shallow areas) in ponds F-L to create a flow-through channel; (3) filling and sloping of banks along Goodpasture Island Road and the

Delta Highway to create a wider buffer; (4) revegetation of sloped and filled areas with riparian and wetland plant species; (5) removal of invasive plant species; (6) removal of the high spots (shallow areas) in Dedrick Slough that currently cause stranding of fish; (7) underplantings of native shrubs and conifers in existing riparian areas; and (8) placement of LWD throughout the Dedrick Slough and ponds. This alternative must be combined with Area 1 to have flow-through and fish passage from upstream.

Area 3

Proposed restoration in this area includes: (1) Placement of culverts to connect ponds F, M, P and L; (2) excavation to connect ponds M-R; (3) filling and sloping banks along Delta Highway; (4) revegetation of sloped areas with riparian and wetland plant species; (5) removal of non-native plant species; and (6) placement of LWD.

Area 5

Proposed restoration at Area 5 includes re-connection of an old side channel that is now only connected during flood flows with the Willamette River. The fill will be excavated to allow the side channel to be connected most of the year (except during low flows), and some excavation will likely be needed at the downstream end to construct an outlet and to remove or replace the existing culvert under the bike trail. Some removal of debris in the existing channel is also proposed. Channel excavation will be accomplished to avoid removing native trees and shrubs to the maximum extent possible. The existing riparian zone will be under-planted and widened on both sides of the channel (to approximately 100 feet on each bank), and LWD will be placed in the side channel. No rock or other bank protection is needed to protect this side channel or the adjacent residential neighborhood.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information

The listing status and biological information for UWR chinook salmon are described in Myers *et al.* (1998). The Willamette River in the Eugene Delta Ponds Restoration Project area provides migratory habitat for both adult and juvenile life stages of UWR chinook salmon and rearing habitat for juvenile UWR chinook salmon.

Essential features of the adult spawning, juvenile rearing, and adult and juvenile migratory habitats for the species are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions (50 CFR 226.212). The essential features that the proposed project may affect are: Safe passage conditions, substrate, water quality, cover/shelter, space, and riparian vegetation resulting from project activities.

2.1.2 Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps of the consultation regulations combined with the Habitat Approach (NMFS 1999): (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species and whether the action is consistent with the available recovery strategy; (4) consider cumulative effects; and (5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or destroy or adversely modify critical habitat. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with cumulative effects, when added to the environmental baseline, is likely to jeopardize the ESA-listed species or result in the destruction or adverse modification of critical habitat. If either or both are found, NOAA Fisheries will identify reasonable and prudent alternatives for the action that avoid jeopardy or destruction, or adverse modification of critical habitat.

2.1.3 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmonids is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with information considered in its decision to list UWR chinook salmon for ESA protection, then considers new data available that are relevant to the determination.

The relevant biological requirements are those necessary for UWR chinook salmon to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration and juvenile rearing. UWR chinook salmon survival in the wild depends upon the proper functioning of certain ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while removing adverse impacts of current practices. In conducting analyses of habitat-altering actions, NOAA Fisheries defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat approach" to its analysis (NMFS 1999). The current status of UWR chinook salmon, based upon their risk of extinction, has not significantly improved since the species were listed.

2.1.4 Environmental Baseline

In step 2 of NOAA Fisheries' analysis, we evaluate the relevance of the environmental baseline in the action area to the species' current status. The environmental baseline is an analysis of the effects of past and ongoing human-caused and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The action area includes, "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The action area for this consultation includes the east bank of the Willamette River in the areas of Delta Ponds A-C, Delta Ponds D-R and the adjacent riparian areas, the Dedrick Slough and its adjacent riparian area, and the remnant side channel and adjacent riparian area along the west bank of the Willamette River and across the river from the upstream end of Dedrick Slough in the city of Eugene, Oregon.

In the past, the Willamette River offered ideal rearing habitat for juvenile salmonids in its highly braided main channel and numerous side channels, but approximately 75% of the river shoreline has been lost (Benner and Sedell 1997). The local floodplain provided large quantities of organic material in litterfall, downed trees, and particulate materials from flood flows (Sedell and Froggatt 1984). Channelization and development along the Willamette River has reduced the complexity of the habitat features and the connectivity with adjacent wetlands and sloughs. Lack of large woody debris and refugia reduces the cover available to juvenile salmonids.

Upstream from the Eugene area, hydroelectric dam construction limited access to significant portions of the major spring-run chinook salmon-bearing tributaries upon completion in the 1960s (Myers *et al*. 1998). As the Willamette River mainstem splits into the Coast Fork and the Middle Fork, accessibility for salmonids is reduced at Dexter Dam, the lower-most dam on the Middle Fork, blocking upstream migration, and by the Dorena and Cottage Grove Dams on the Coast Fork. Peak flows on the Middle Fork after reservoirs were completed have averaged 30% of pre-reservoir values (Andrus *et al.* 2000). Dams on Fall Creek (a tributary) included fish passage facilities but these failed to sustain the spring chinook runs (Mamoyac and Ziller 2001). The dams have also altered the temperature regime of the Willamette River and its tributaries, affecting the timing of development of naturally-spawned eggs and fry.

Currently, water quality in the Upper Willamette River is under the authority of the state of Oregon under a framework provided by the Clean Water Act (CWA). The states promulgate water quality standards for specific physical and chemical parameters. Section 303(d) of the CWA requires states to identify and develop a list of waters for which water quality is inadequate to fully support designated beneficial uses. The states must develop water quality management plans, or total maximum daily loads (TMDLs), to define pollutant reductions necessary to bring the water body into compliance with water quality standards. The Willamette River between McKenzie River and the Coast Fork, including the proposed action area, is listed on the Oregon Department of Environmental Quality (ODEQ) 303(d) Water Quality Limited Streams Database (ODEQ 1998, 2002) for the following parameters:

1. Toxics. Based on supporting data, a Consumption Health Advisory has been issued for mercury in fish tissue (0.63 ppm while the reference level is 0.35 ppm); and arsenic was listed in 2002 after it was found downstream at RM 178 in 17 of 18 samples to exceed the criterion of 0.002 ug/L.

2. Temperature. Based on ODEQ data, 36% of summer values exceeded the temperature standard (64°F), with most years exceeding at some point, and a maximum of 70.7°F in water years 1986 - 1995. There has been no change in the 303(d) status since 1996.

Sedimentation and nutrient parameters were not listed because of lack of data. The toxic parameter dioxin was not listed because the TMDL has been established, approved, and has 2003 as its target date for completion (ODEQ 1999, 2002). Other parameters that were not listed are dissolved oxygen, pH, bacteria, and Chlorophyll *a* because they were below the listing criteria thresholds.

Fish habitats are enhanced by diversity of conditions at the land-water interface and adjacent bank (USACE 1977). Streamside vegetation provides shade that reduces water temperature and stabilizes streambanks. Overhanging branches provide cover from predators. Insects and other invertebrates that fall from overhanging branches may be preyed upon by fish, or provide food sources for other prey organisms. Immersed vegetation, logs, and root wads provide points of attachment for aquatic prey organisms and shelter from swift currents during high flows, and they retain bed load sediment, create pools, and reduce flow velocity. The significant loss of floodplain and aquatic habitat throughout the basin is a primary factor of decline for salmon. The remaining poor quality habitat cannot sustain these threatened species in the long term without habitat restoration and enhancement. The ponds, if reconnected and restored, will provide a significant area of critical side channel and floodplain habitat within this urbanized reach of the Upper Willamette River.

2.1.4.1 Project Areas

The Delta Ponds are remnants of a former main channel of the Willamette River (Russ Fetrow Engineering, Inc. 1989) and floodplain alluvial deposits from the river meandering. The deposit of gravels in the area led to extensive mining. A 1980 report estimates that two million cubic yards of sand and gravel were extracted from the site in 20 years (Gallagher 1980). After mining ended in 1962, the ponds were abandoned and natural succession was allowed to take place. Several major roadways were built through the area including Delta Highway and Goodpasture Island Road, which led to recent development throughout the Delta Ponds area.

Currently, the terrestrial and aquatic habitats associated with the ponds are in poor condition, although it is still a site of significant use by migratory birds, waterfowl and pond turtles. Adjacent to the Willamette River, the riparian zone has developed into a deciduous forested area of 30 to 50 years of age. However, throughout much of the site, exotic plant species have become established and may in some instances be preventing the succession of native species. Because of the shapes and sizes of the ponds (steep-sided pits) and the presence of numerous

roads and structures, vegetated areas are limited in width, height, and diversity. Uplands transition to open-water ponds in extremely short distances in many cases, preventing more than a few individual riparian species from becoming established. The pond water level is maintained primarily with groundwater flow, with overbank flows from the Willamette River occurring rarely. Dedrick Slough connects some of the ponds to the Willamette River at the downstream end, but only seasonally. The mostly isolated ponds become stagnant and algae-covered during much of the summer and fall, while a lack of shading and water exchange causes high water temperatures and diminishes fish and wildlife habitat quality and quantity.

Area 1 (Ponds A-E)

Ponds A-C are connected to the Willamette River during moderate to high flood flows (>8,000 cfs in the Willamette River in the project area). These ponds have accumulated sediment during these winter flows, are shallower than the other ponds, and tend to dry out partially or completely during summer months. Currently the habitat is poor for UWR chinook salmon. Infrequent connection to the river likely results in fish stranding, high water temperatures during low flows, and lack of cover. There is currently a fairly diverse assemblage of emergent wetland plant species and a variety of elevations (depths) in the ponds. Enhancement of the riparian zone by removal of blackberries and planting native trees and shrubs would benefit fish and wildlife species. Ponds D and E also offer poor habitat quality for UWR chinook salmon, due primarily to the high water temperatures and lack of shoreline and in-water cover.

According to the BA, riparian zone width for ponds A-C in Area 1 is an average of 43 feet for all sides of the ponds, which is the greatest riparian zone width for all pond groups. The dominant trees are native and include black cottonwood (*Populus balsamifera*) and willows (*Salix* sp., several species), with lesser areas occupied by red alder (*Alnus rubra*) and Oregon ash (*Fraxinus latifolia)*. Himalayan blackberry (*Rubus discolor*) is the most dominant shrub, followed by red-osier dogwood (*Cornus stolonifera*), willow, and spirea (*Spirea douglasii*). The average surface water temperature[1] at the time of the survey was 73° F. Pond substrate was typically highly organic silt, or silt over cobble. These ponds averaged eight pieces of aquatic large woody debris (ALWD), five pieces of terrestrial large woody debris (TLWD), and eight snags. These ponds had abundant and diverse submerged and emergent aquatic vegetation (*Myriophyllum aquaticum, Myosotis scorpioides, Lycopus americanus, Lemna minor, Hydrocotyle ranunculoides, Polygonum hydropiperoides, Bidens cernua, Cyperus erythrorhizos, Carex obnupta, Ludwigia palustris*, *etc*.). In ponds D and E, average surface water temperature in August 2000, was 75° F. Pond substrate was typically highly organic silt, or silt over cobble. These ponds averaged ten pieces of ALWD, four pieces of TLWD, and five snags. Dominant trees included big-leaf maple (*Acer macrophyllum*), and black cottonwood, but were very sparse. Riparian zone width at ponds D and E averaged 20 feet, and the area was dominated on all banks by Himalayan blackberry. The ponds are dominated by the submergent Eurasian milfoil (*Myriophyllum spicatum*), and there are limited native emergent wetland plant species.

[1] Average temperatures are based on one or two measurements in each pond, taken at the surface in August, 2000 (representative of likely maximum pond temperatures).

A water quality sample was collected at one site in Pond D in late July of 2000. The water quality parameters that were measured included: Biochemical oxygen demand (BOD), total organic carbon (TOC), fecal coliform, total dissolved solids (TDS), total suspended solids (TSS), total phosphorus (TP), ammonia, nitrate/nitrite, total kjeldahl nitrogen (TKN), phosphate, chloride, and sulphate. Total phosphorous and total nitrogen levels exceeded recommended levels. High total phosphorous and nitrogen concentrations indicate utrophication. Fecal coliform levels in Pond D were 50 CFU/100ml which is well below the Oregon state water quality standard of 406 CFU/100ml.

Sediment samples were collected following procedures described in USACE (1998). A surface sediment grab sample was collected in Pond D in late July of 2000. The sediment sample was tested for nine inoganic metals, pesticides, phenols, phthalates, extractables, and polynuclear aromatic hydrocarbons (PAHs). None of the parameters tested in Pond D sediment exceeded the established screening levels in the Dredge Material Evaluation Framework (DMEF) guidelines. Sampling at three locations along the north bank of Pond D in November and December 2000, again found that none of the established screening levels were exceeded. Sampling at three locations between Pond C and the Willamette River found that levels were exceeded for benzyl alcohol (60 parts per billion) and benzoic acid (820 ppb).

Area 2 (Ponds F-L and Dedrick Slough)

Currently, these ponds have very poor habitat quality for UWR chinook salmon, primarily due to the high water temperatures and lack of riparian and aquatic cover. Dedrick Slough, while rated extremely poor for UWR chinook salmon, likely does provide seasonal rearing habitat for juvenile UWR chinook salmon because the downstream end is connected to the Willamette River during winter flows. There is extensive willow cover along both banks for much of the slough, although the overall riparian zone is fairly narrow.

In August 2000, the average surface water temperature was 79°F in ponds F through L. Pond substrate was typically highly organic silt, or silt over cobble. Ponds averaged 12 pieces of ALWD, three pieces of TLWD, and two snags. Again, the average riparian zone width was only 20 feet. Himalayan blackberry dominated the riparian zone for all ponds surveyed in this group (more than 50% cover). Particularly in this area, the riparian zone is very narrow because of the presence of both Goodpasture Island Road and the Delta Highway (riparian zone only occupies slope of fill for roadways, typically 25 feet or less). This area had the most significant area of upland island habitat that was dominated by cottonwood, and willows in the tree layer. The average surface water temperature for Dedrick Slough was 77°F. Substrate was typically highly organic silt, or silt over cobble. There are very few trees present adjacent to Dedrick Slough, but a dense riparian zone (25 to 50 feet in width) of willow is present along the majority of the slough. The average of LWD at sites along the slough was four pieces of ALWD, two pieces of TLWD, and one snag.

A water quality sample was collected at one site in Pond G in late July of 2000. Water quality parameters measured were the same as those listed above for Pond D. Total phosphorous and total nitrogen levels again exceeded recommended levels indicating eutrophication. Fecal

coliform levels in Pond G were 330 CFU/100ml which is only slightly below the Oregon state water quality standard of 406 CFU/100ml.

Water quality samples were collected from three sites in Dedrick Slough. Total phosphorous and total nitrogen levels again exceeded recommended levels indicating eutrophication. Fecal coliform levels at two sites in Dedrick Slough were 1,500 CFU/100ml which greatly exceeds the Oregon state water quality standard of 406 CFU/100ml. A draft document provided by the COE summarizing the results of water quality sampling speculated that the high fecal coliform counts in Dedrick Slough could be due to waterfowl feces.

Sediment sampling conducted in Pond G in July 2000, and at locations along Goodpasture Island Road and the Delta Highway where culverts are to be installed found that none of the parameters exceeded screening levels at these sites. Sampling near Pond G, between Ponds G and H, and between Ponds H and L in November and December of 2000, found that screening levels were exceeded for phenol (620 ppb), benzyl alcohol (340 ppb), and benzoic acid (2000 ppb). Sampling in Pond F found zinc levels of 890 parts per million (ppm), and in Pond L zinc levels were 840 ppm and silver was 12-13 ppm, both measurements exceeding the screening levels for these inorganic metals.

Sediment sampling at three location in Dedrick Slough in July 2000, found screening levels exceeded for cadmium (32 ppm) and zinc (3100 ppm). Sampling at five locations in Dedrick Slough in November and December 2000, also found levels exceeding screening levels for cadmium, zinc, and silver.

Area 3 (Pond M-R)

These ponds have poor to moderate quality habitat for UWR chinook salmon due to unsuitable water temperatures and an absence of fish passage into the ponds. Average surface water temperature in these ponds was 66°F, which may either reflect shading (significantly more canopy cover at these ponds) or groundwater inputs, or both. Pond substrate was typically highly organic silt, or silt over cobble. Each pond within the group averaged ten pieces of ALWD, four pieces of TLWD, and five snags. Willow, black cottonwood, Oregon ash, and red alder were the dominant trees. Himalayan blackberry dominated the shrub cover (up to 60% at pond P), while lesser cover was provided by willow and red-osier dogwood. Riparian zone width averaged 26 feet.

A water quality sample was collected at one site in Pond O in late July of 2000. Water quality parameters measured were the same as those listed above for Ponds D and G. Total phosphorous and total nitrogen levels again exceeded recommended levels indicating eutrophication, but were only about half those found in Ponds D and G. Fecal coliform levels in Pond O were only 25 CFU/100ml. Sediment sampling conducted in Pond O in July 2000, found the screening level exceeded for benzoic acid.

Area 5 (Remnant Side Channel)
This area is on the west side of the Willamette River just north of the Delta Ponds area. There is an existing pond that is connected to the river, and an old side-channel that is only connected to the Willamette River during flood flows. An existing bike trail runs along the east side (river side) of the pond and channel. A fairly high quality riparian zone (although narrow) exists on both sides of the channel, and emergent wetland species are in the channel bottom (although dominated by primarily reed canary grass). The side channel riparian zone is dominated by red alder, cottonwood, and blackberries

2.1.5 Effects of Proposed Action

In step 3 of the jeopardy analysis, NOAA Fisheries evaluates the effects of the proposed action on listed fish and their habitat.

UWR chinook salmon, which may be present in the ponds and Dedrick Slough, may be affected by the proposed project due to: (1) Potential for increased sediment/turbidity in the ponds and Dedrick Slough created by construction activities; (2) possible stranding of juvenile fish in the ponds and Dedrick Slough during construction activities or from operation of the culvert gates to control flooding; and (3) predation by existing predators in the ponds and Dedrick Slough. There is also some potential for sediment to enter the Willamette River adjacent to and downstream from the project area as a result of construction activities. However, sediment entering the river is expected to be minimal, because the downstream end of Dedrick Slough will be closed off by a berm during construction activities.

Excavation and fill activities required for culvert installations, deepening of shallow areas in the ponds, creation of connecting channels between ponds, and recontouring of pond banks have the potential to produce sedimentation in the Delta Ponds and in the Willamette River. However, the placement of temporary berms to close off Dedrick Slough from the Willamette River, the sequencing of construction activities (as listed above in section 1.2), and the use of silt fences and other sediment control measures are expected to minimize transport of sediment to the Willamette River, where chinook are most likely to be present. In addition, all in-water construction will occur during the preferred ODFW in-water work window for the Willamette River, June 1 to October 31, when UWR chinook salmon are least likely to be present in this river reach or in the Delta Ponds.

Based on sediment sampling results provided by the COE, the excavation of bottom material in some areas in the Dedrick Slough and in Ponds F, G, L, and O could potentially disturb sediments contaminated with zinc, cadmium, silver, and benzoic acid. Sampling in other areas such as Ponds D and G, and at the proposed culvert installation sites along Goodpasture Island Road and the Delta Highway found levels below the screening levels established in USACE (1998). The sequencing of construction activities as described in the BA and section 1.2 of this Opinion, and the removal of excavated bottom materials from known contaminated sites to upland sites where they cannot enter streams or other waterbodies are expected to minimize the potential for transport of contaminated sediment from the Delta Ponds and Dedrick Slough to the

Willamette River. In addition, for areas in the ponds or in Dedrick Slough where excavation will occur, bottom sediment material will be removed down to native rock in most locations, and therefore, the newly exposed bottom area should not contain contaminated material after excavation.

If any UWR chinook salmon are present in the ponds during construction there could be some mortality associated with construction activities. Installation of temporary berms to close off Dedrick Slough from the Willamette River to prevent turbid water and runoff from entering the Willamette River during construction could cause stranding of fish in the ponds. However, because of the timing of the work, it is expected that any juvenile UWR chinook salmon which are still present in the ponds at that time would already have been stranded due to the high spots (shallow areas) throughout Dedrick Slough that prevent escapement from the ponds in early summer. Juvenile UWR chinook salmon in the ponds at the time of construction could also be killed or injured by direct contact with excavation equipment. However, direct mortality is expected to be minimal because fish can avoid the excavation equipment.

The operation of the inlet culverts will allow water flow into the ponds during Willamette River flows below 11,000 cfs, but requires closure of the gates when flows exceed 11,000 cfs (approximately a two-year flow) to avoid flooding. UWR chinook salmon present in the ponds will still have sufficient water during high flows to continue rearing, and the downstream connection through Dedrick Slough will be significantly improved to ensure a continuous connection to the river during October through May. During low summer flows, no water will flow into the upstream culverts, and the ponds will dry out more than currently occurs. The proposed channels connecting the ponds and proposed culverts under the roadways will be designed to drain downstream to allow juvenile UWR chinook salmon to migrate out of the ponds and into the Willamette River as the flows drop. The proposed project is expected to significantly reduce the potential for juvenile UWR chinook salmon stranding in the ponds or in Dedrick Slough. However, there will still be some potential for juvenile UWR chinook salmon to become stranded in the ponds or in Dedrick Slough even after completion of the proposed project. Flows through the system will need to be monitored to determine the best way to operate the inlet gates to minimize or avoid stranding of UWR chinook salmon.

There are several non-native fish species present in the Delta Ponds, including largemouth bass, white and black crappie, brown bullhead, bluegill, carp and mosquito fish. Largemouth bass, white and black crappie, and brown bullhead can be piscivorous and prey on salmon fry and juveniles. Piscivorous native fish include cutthroat and rainbow trout. These non-native species are likely to continue to inhabit the ponds to some extent after completion of the proposed restoration activities. The non-native predator species are primarily warm water fish, which have done well in the current condition of the ponds. The warm water species prefer dense aquatic vegetation (such as milfoil) and are more active and foraging from April or May through October. Non-native, warm water, piscivorous fish predation may be inhibited if water temperatures are lowered since they become generally inactive at water temperatures below 55°F (13°C). Juvenile UWR chinook salmon would most likely utilize the ponds from November through May, prior to migrating downstream. There would be some temporal overlap between

the juvenile UWR chinook salmon and their predators, but this is not expected to be a significant source of mortality.

Beneficial effects resulting from the proposed restoration project include: (1) High quality floodplain rearing and refuge habitat for juvenile UWR chinook salmon in an area where floodplain and off-channel habitats are currently rare; (2) excavation of the wetland channel, wetlands, and the high spots (shallow areas) throughout the ponds and Dedrick Slough will be designed to reduce fish stranding; (3) improvement of riparian vegetation and creation of wetlands are expected to reduce water temperatures in the ponds and slough area over time; (4) creation of the side channel/wetland habitat (Area 5) will provide additional off-channel rearing and refuge habitat for UWR chinook salmon; and (5) placement of LWD throughout the ponds will increase habitat complexity and provide improved cover for rearing juvenile UWR chinook salmon

2.1.6 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." This is step 4 in NOAA Fisheries' analysis process.

According to the BA, the vacant land parcel north of Pond D is proposed for development into condominiums or other residential units. Lane County has plans to widen the Delta Highway, although there is no scheduled time frame for the widening project. NOAA Fisheries is not aware of any other specific future non-Federal activities within the action area that would cause greater impacts to listed species than presently occurs. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years.

2.1.7 Conclusion

The final step in NOAA Fisheries' approach to determine jeopardy is to determine whether the proposed action is likely to appreciably reduce the likelihood of species survival or recovery in the wild. NOAA Fisheries has determined that, when the effects of the proposed Eugene Delta Ponds Restoration Project addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, it is not likely to jeopardize the continued existence of UWR chinook salmon. NOAA Fisheries used the best available scientific and commercial data to apply its jeopardy analysis when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NOAA Fisheries believes that the proposed action would cause a short term increase in turbidity in the Delta Ponds and Dedrick Slough. If juvenile UWR chinook salmon are present in the ponds or Dedrick Slough during construction activities, some direct mortality could result from stranding or from direct contact with construction equipment. The level of direct mortality is expected to be minimal and would not result in jeopardy. In the long term, survival and safe passage conditions for juvenile UWR chinook salmon will be improved.

These conclusions are based on the following considerations: (1) All in-water work will be completed within the ODFW preferred in-water work period between June 1 and October 31; (2) very few, if any, juvenile UWR chinook salmon are expected to be present in the Delta Ponds during the in-water work period; (3) downstream movement of sediment into the Willamette River from construction activities is expected to be minimal because the Dedrick Slough outlet to the river will be blocked during construction activities; (4) streambank areas disturbed by project activities will be mulched and planted with native grasses, shrubs, and trees; (5) floodplain rearing and refuge habitat for juvenile UWR chinook salmon will be created in an area where floodplain and off-channel habitats are currently rare; (6) excavation of the wetland channel, wetlands, and the high spots (shallow areas) throughout the ponds and Dedrick Slough will be designed to reduce fish stranding; (7) excavated bottom materials from known contaminated sites will be removed to upland sites where they cannot enter streams or other waterbodies to minimize the potential for transport of contaminated sediment; (8) increased shade resulting from improvement of riparian vegetation is expected to reduce water temperatures in the ponds and slough area over time; (9) creation of the side channel/wetland habitat (Area 5) will provide additional off-channel rearing and refuge habitat for UWR chinook salmon; and (10) placement of LWD throughout the ponds will increase habitat complexity and provide improved cover for rearing juvenile UWR chinook salmon. The proposed action is not likely to impair properly functioning habitat, appreciably reduce the functioning of already impaired habitat, or retard the long-term progress of impaired habitat toward proper functioning condition essential to the long-term survival and recovery at the population or ESU scale.

2.1.8 Conservation Recommendation

Section 7 (a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of proposed actions on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. NOAA Fisheries believes that the following conservation recommendation should be implemented:

1. Sediment sampling conducted in Dedrick Slough and the Delta Ponds detected levels of heavy metals (zinc, cadmium, and silver) in the sediments which exceeded screening levels established under the DMEF (USACE 1998) to determine suitability of dredged sediments for unconfined in-water disposal. Additional sampling should be conducted to determine the source(s) and extent of these contaminants, and a course of action implemented to eliminate them.

2.1.9 Reinitiation of Consultation

Reinitiation of consultation is required if: (1) The action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Opinion;

(2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or, (3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR. 402.16).

2.2 Incidental Take Statement

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of UWR chinook salmon because of detrimental effects from increased sediment levels (non-lethal), increased pollutant levels (potentially lethal), and limited riparian habitat disturbance (non-lethal). Any salmonids observed in the ponds during construction of culverts and swales will be salvaged, but few are expected to survive in the existing summer pond conditions. Activities to capture and release salmonids could result in lethal take. Based on the expected low numbers of juvenile UWR chinook salmon in the Delta Ponds and Dedrick Slough at the time in-water work is conducted, the potential for take is low.

Effects of actions such as those covered by this Opinion are unquantifiable in the short term and are not expected to be measurable as long-term harm to habitat features or by long-term harm to salmonid behavior or population levels. Therefore, even though NOAA Fisheries expects some low level incidental take to occur due to the proposed action covered by this Opinion, best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate the specific amount of incidental take to the species itself. In instances such as these, NOAA Fisheries designates the expected level of take as "unquantifiable". Based on the information in the biological assessment and other information provided by the COE, NOAA Fisheries anticipates that an unquantifiable amount of incidental take could occur as a result of the habitat

altering actions covered by the Opinion. The extent of the take includes the aquatic and associated riparian habitats affected by the project.

2.2.2 Effect of Take

In this Opinion, NOAA Fisheries determines that this level of anticipated take is not likely to result in jeopardy to UWR chinook salmon.

2.2.3 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of listed salmonid species resulting from the action covered in this Opinion. The COE shall include as part of the section 10 River and Harbors Act and section 404 Clean Water Act permits measures that will:

1. Minimize the likelihood of incidental take from activities involving use of heavy equipment, earthwork, or site restoration by directing the contractor to avoid or minimize disturbance to riparian and aquatic systems.

2. Reduce loss of habitat value from tree removal by keeping downed trees on site and ensure success of revegetation by applying permit conditions to new plantings.

3. Complete a comprehensive monitoring and reporting program to ensure this Opinion is meeting its objective of minimizing the likelihood of take from permitted activities.

2.2.4 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the COE must require, as part of the section 10 and section 404 permits, that the applicant and/or their contractors comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1 (avoid or minimize disturbance to riparian and aquatic systems), the COE shall ensure that:

    a. Project design. The project will be reviewed to ensure that impacts to natural resources have been avoided, minimized and mitigated, and that the following overall project design conditions are met.
        i. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project.
        ii. In-water work. All work which could potentially contribute sediment or toxicants to downstream fish-bearing systems, will be completed within the Oregon Department of Fish and Wildlife (ODFW) approved in-water work period;

iii. Work period extensions. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark must be approved in writing by biologists from NOAA Fisheries.

iv. Pollution and erosion control plan. A pollution and erosion control plan (PECP) will be developed for the project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations.

(1) Methods that will be used to prevent erosion and sedimentation associated with construction sites, equipment and material storage sites, fueling operations and staging areas.

(2) Methods that will be used to confine, remove, and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.

(3) A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.

(4) A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, quick response containment and clean up measures will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.

b. Pre-construction activities. Prior to significant alteration of the action area, the following actions will be accomplished:

i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

ii. Prior to disturbing sediments in areas not previously sampled, collect samples of bottom sediments and test for contaminant levels in areas of the Delta Ponds and Dedrick Slough where excavation will occur.

iii. The following erosion control materials are onsite.

(1) A supply of erosion control materials (*e.g.*, silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.

(2) An oil-absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.

iv. All temporary erosion controls (*e.g.*, straw bales, silt fences) are in-place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

c. Heavy Equipment. Heavy equipment use will be restricted as follows:

i. When heavy equipment is required, the applicant will use equipment having the least impact (*e.g.*, minimally-sized, rubber-tired).

ii. Heavy equipment will be fueled, maintained and stored as follows.

(1) Place vehicle staging, maintenance, refueling, and fuel storage areas a minimum of 150 feet horizontal distance from any stream.

(2) All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.

(3) When not in use, vehicles will be stored in the vehicle staging area.

d. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, is completed in the following manner:

i. Material removed during excavation from areas where sediment sampling indicates levels of contaminants that exceed the established screening levels in the DMEF (USACE 1998) will only be placed in locations where it cannot enter streams or other water bodies.

ii. All exposed or disturbed areas will be stabilized to prevent erosion.

(1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,[2] mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within seven days of exposure. Non-native sterile seed mix may be used the first year for temporary erosion control.

(2) All other areas will be stabilized quickly as reasonable, but within 14 days of exposure.

(3) Seeding outside of the growing season will not be considered adequate nor permanent stabilization.

iii. All erosion control devices will be inspected during construction to ensure that they are working adequately.

(1) Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, monthly on inactive sites.

(2) If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, during working and off-hours, to make repairs, install replacements, or install additional controls as necessary.

(3) Erosion control measures will be judged ineffective when turbidity plumes are evident in waters occupied by listed salmonids during any part of the year.

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[2] By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

iv. If soil erosion and sediment resulting from construction activities is not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.

v. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug five inches into the ground. Catch basins will be maintained so that no more than six inches of sediment depth accumulates within traps or sumps.

vi. Sediment-laden water created by construction activity will be filtered before it leaves the right-of-way or enters a stream or other water body. Silt fences or other detention methods will be installed as close as reasonable to culvert outlets to reduce the amount of sediment entering aquatic systems.

e. Capture and release. Before and intermittently during construction activities in an in-water work area, an attempt must be made to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.

i. A fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish must conduct or supervise the entire capture and release operation.

ii. If electrofishing equipment is used to capture fish, the capture team must comply with NOAA Fisheries' electrofishing guidelines.[3]

iii. The capture team must handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.

iv. Captured fish must be released as near as possible to capture sites.

v. ESA-listed fish may not be transferred to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.

vi. Other Federal, state, and local permits necessary to conduct the capture and release activity must be obtained.

vii. NOAA Fisheries or its designated representative must be allowed to accompany the capture team during the capture and release activity, and must be allowed to inspect the team's capture and release records and facilities.

2. To implement reasonable and prudent measure #2 (tree removal and new plantings), the COE shall ensure that:

a. Onsite large woody debris. Any trees which are cut or uprooted on the project site will be placed on site either in ponds or in the riparian area where they will be recruited during flood events for habitat value.

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[3] National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

b. Planting. Revegetation at the project sites is completed in the following manner:
   i. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation.
   ii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.
   iii. Plantings will be arranged randomly within the revegetation area. Approximate placement of trees will specified before construction begins.
      (1) If revegetation success has not been achieved after three years, the applicant will submit an alternative plan to the COE. The alternative plan will address temporal loss of function.
      (2) Plant establishment monitoring will continue and plans will be submitted by the applicant to the COE until site restoration success has been achieved.
   iv. No herbicide application will occur within 300 feet of any stream channel as part of this permitted action, unless approved in advance by a NOAA Fisheries biologist. Mechanical removal of undesired vegetation and root nodes is permitted.
   v. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.

3. To implement reasonable and prudent measure #3 (monitoring and reporting), the COE shall ensure that:

   a. Develop a plan to monitor flow through the pond system and Dedrick Slough, and submit to NOAA Fisheries for approval prior to completion of construction. The COE shall also meet with NOAA Fisheries to discuss the plan prior to completion of construction. The intent of the plan is to sustantiate the expected amounbt of flow through the ponds. Results of monitoring shall be submitted to NOAA Fisheries at the address below, prior to the next year's juvenile out-migration season.
   b. Within 30 days of completing the project, the COE will submit a monitoring report to NOAA Fisheries describing the COE's success in meeting these terms and conditions. This report will consist of the following information:
      i. Project identification.
         (1) Project name;
         (2) starting and ending dates of work completed for this project; and
         (3) the name and address of the construction supervisor.
      ii. A narrative assessment of the project's effects on natural stream function.
      iii. Photographic documentation of environmental conditions at the project site before, during and after project completion.

(1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre- and post-construction.
(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
(3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

c. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to NOAA's National Marine Fishery Service Law Enforcement Office, located at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; telephone: 360.418.4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

d. Monitoring reports will be submitted to:

NOAA Fisheries
Oregon Habitat Branch
Attn: 2002/00263
525 NE Oregon Street
Portland, OR 97232

3. MAGNUSON-STEVENS ACT

3.1 Magnuson-Stevens Fishery Conservation and Management Act

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of EFH: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated

biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reason for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.2 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O.gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.3 Proposed Action

The proposed action is detailed above in section 1.2 of this document. The action area for this consultation, therefore, includes the east bank of the Willamette River in the area of Delta Ponds A-C, Delta Ponds D-R and adjacent riparian areas, the Dedrick Slough and its adjacent riparian area, and the remnant side channel and adjacent riparian area along the west bank of the

Willamette River and across the river from the upstream end of Dedrick Slough. This area has been designated as EFH for various life stages of chinook salmon.

3.4 Effects of Proposed Action

As described in detail in the ESA portion of this consultation, the proposed activities would result in detrimental, short-term, adverse effects to a variety of habitat parameters.

3.5 Conclusion

NOAA Fisheries believes that the proposed action will temporarily adversely affect the EFH for chinook salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. In addition to conservation measures proposed for the project by the COE, all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2.3 and 2.2.4, respectively, of the ESA portion of this Opinion are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.7 Statutory Response Requirement

The MSA (section 305(b)) and 50 CFR 600.920(j) requires the COE to provide a written response to NOAA Fisheries' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. If the response is inconsistent with NOAA Fisheries' conservation recommendations, the COE shall explain its reasons for not following the recommendations.

3.8 Supplemental Consultation

The COE must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion in addition to the BA and additional information requested by NOAA Fisheries and provided by the COE.

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